

Application N .: 09/927,723

Docket No.: JCLA7513

REMARKS**Present Status of the Application**

The Office Action rejected claims 1-14. Specifically, the Office Action rejected claims 1-14 under 35 U.S.C. 103 as being unpatentable over Rose et al. (U.S. Patent 5,567,329). Applicants have amended specification and drawings to correct typographic errors. Applicants have also amended claims to improve clarity. After entry of foregoing amendments, claims 1-5, 8-10, and 12-14 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Claim Rejections

The Office Action rejected claims 1-14 under 35 U.S.C. 103 as being unpatentable over Rose et al. (U.S. Patent 5,567,329). Applicants respectfully traverse the rejections for at least the reasons set forth below.

The claimed invention as recited in independent claim 1 includes the electroplating mask 560 (see FIG. 5g). The electroplating mask has also cover the exposed surfaces of the conductive layers 212 and 214 but the openings 320, 321 and a portion 581 of the second conductive layer 214 are exposed. In this manner, the filled electroplating material 600 does not form on the backside of the second conductive layer 214, and only fills into the openings as schematically shown in FIG. 5g.

After then, the planarizing process is performed to remove the protrusion portion of the filled material 600. Then the rod 600 has the same height as the conductive layers 212 and 214.

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In re Rose et al., in Figs. 1E-1F, the mask 39 is only formed on the conductive layer 29 but not on the back surface of the conductive layer 31. In this manner, during the electroplating process, the material 41 with the same material as the conductive layer 31 (col. 4, lines 62-64) with also form on the back side surface of the conductive layer 31. Or in other words, Rose et al. never found this issue. This is not obvious to Rose et al. when hindsight or personal knowledge from the Examiner are not involved.

Also and, with respect to the planarizing process, in comparing FIGs. 5g-5h of the present invention with Figs. 1F-1G, clearly, Rose et al. do not disclose the planarizing process to remove the protruding portion. Then the rod 600 has the same height with the conductive layer 560. In Fig. 1G of Rose et al., the material 41 covers the conductive layer 29 but the mask 39 is removed to expose the dielectric layer 23. More specifically, the process of Rose et al. result in the T-shape post 41 with a portion over the conductive layer 29.

Therefore, Rose et al. never disclose the same process of the present invention to produce the structure as shown in FIG. 5h.

The electroplating mask and the planarizing process of the claimed invention are not obvious, resulting in formation of the desired structure in FIG. 5h.

For at least the foregoing reasons, Applicants respectfully submits that independent claim 1 patently defines over the prior art, and should be allowed. For at least the same reasons, dependent claims 2-5, 8-10, and 12-14 patently define over the prior art references as well.

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CONCLUSION

For at least the foregoing reasons, it is believed that all the pending claims 1-5, 8-10, and 12-14 of the invention patentably define over the prior art and are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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